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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/771,628

02/03/2004

M. Brandon Steele

023228-0109

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01/11/2006

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EXAMINER

WALLING, MEAGAN S

ART UNIT

PAPER NUMBER

2863

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/771,628

Applicant(s)

STEELE ET AL.

Examiner

Meagan S. Walling

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-32 and 34-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32 and 34-44 is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☒ Claim(s) 2-31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date: _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____  | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

The indicated allowability of claim 1 is withdrawn. Rejections based on the newly cited reference(s) follow.

Since claim 1 of the current application claims the same limitations as claim 1 of parent application 10/631,469, the allowability of this claim has been withdrawn. Although applicant argued this rejection in the 3/3/05 amendment, this claim was cancelled and a more specific claim was ultimately allowed. Furthermore, neither claim 1 of the current application or claim 1 of the parent application teaches the measurement/control according to the reference point as is taught in the specifications.

The limitations of current claim 1 are disclosed in the background of the invention of the current application (see paragraphs 9-13). In these paragraphs, applicant clearly discloses the use of a reference point in order to improve the technique. However, current claim 1 does not disclose this limitation in combination.

### ***Claim Objections***

1. Claims 9 and 21 are objected to because of the following informalities:

Claim 9 recites the limitation "reducing the noise" in claim 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 21 reads "an combinations thereof", but should read "and combinations thereof".

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Ma et al. (US 6,011,404).

Regarding claim 1, Ma et al. teaches providing a semiconductor wafer (see Fig. 1, Ref. 10); providing a non-vibrating contact potential difference sensor (see Fig. 1, Ref. 16); scanning the semiconductor wafer relative to the non-vibrating contact potential difference sensor (column 6, lines 23-25); generating contact potential difference data from the non-vibrating sensor (column 6, lines 25-28); and processing the non-vibrating contact potential difference sensor data to automatically detect a pattern that represents a defect (column 10, lines 13-16).

***Allowable Subject Matter***

3. Claims 2-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of allowability of claim 2 is the inclusion of the limitation of determining a scanning height of the non-vibrating contact potential difference

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sensor. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 5 is the inclusion of the limitation of determining a reference point. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 10 is the inclusion of the limitation of reducing the noise in the non-vibrating contact potential difference sensor data. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 14 is the inclusion of the limitation of removing a time delay from the non-vibrating contact potential difference sensor data. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 15 is the inclusion of the limitation of displaying the contact potential difference data on a display to generate a characteristic wafer image; and comparing the characteristic wafer image with stand images to identify the category of defect present on the surface of the wafer. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 16 is the inclusion of the limitation of assembling the sensor data into an image that is displayed to the user for evaluation

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by the user. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 17 is the inclusion of the limitation of automatically processing the sensor data to identify the category of defect detected. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 18 is the inclusion of the limitation of moving the wafer. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 20 is the inclusion of the limitation that the wafer includes at least one additional layer disposed on a base silicon wafer. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 21 is the inclusion of the limitation that the defect is taken from a group consisting of a mechanical defect, a chemical defect, an electronic defect, and combinations thereof. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 22 is the inclusion of the limitation of the sensor being displaced relative to a fixed form of the wafer. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 23 is the inclusion of the limitation of moving both the wafer and the sensor. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 24 is the inclusion of the limitation of performing a pattern recognition methodology. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 25 is the inclusion of the limitation of processing the wafer with a treatment for ameliorating the category of defect identified. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 26 is the inclusion of the limitation of performing a supplementary analysis. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

The primary reason for the indication of allowability of claim 29 is the inclusion of the limitation of applying a computerized decisional methodology to reject selected ones of the semiconductor wafers having an unwanted category of defect. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

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The primary reason for the indication of allowability of claim 30 is the inclusion of the limitation of detecting the defect using an edge detection application. It is this limitation in the claimed combination that has not been found, taught, or suggested by the prior art that makes these claims allowable.

4. Claims 32 and 34-44 are allowed.

The following is an examiner's statement of reasons for allowance: Please see previous office action and applicant's response for reasons for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Meagan S. Walling whose telephone number is (571) 272-2283. The examiner can normally be reached on Monday through Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

msw

**BRYAN BUI**  
**PRIMARY EXAMINER**

A handwritten signature in black ink, appearing to read 'B. Bui', is positioned below the printed name and title.